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AMSAT NEWS SERVICE
ANS-296

The AMSAT News Service bulletins are a free, weekly news and information service of AMSAT, The Radio Amateur Satellite Corporation. ANS publishes news related to Amateur Radio in Space including reports on the activities of a worldwide group of Amateur Radio operators who share an active interest in designing, building, launching and communicating through analog and digital Amateur Radio satellites.

The news feed on http://www.amsat.org publishes news of Amateur Radio in Space as soon as our volunteers can post it.

Please send any amateur satellite news or reports to: ans-editor [at] amsat.org

You can sign up for free e-mail delivery of the AMSAT News Service Bulletins via the ANS List; to join this list see: https://mailman.amsat.org/postorius/lists/ans.amsat.org/

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ANS-296 AMSAT News Service Weekly Bulletins

To: All RADIO AMATEURS
From: Radio Amateur Satellite Corporation
712 H Street NE, Suite 1653
Washington, DC 20002

DATE 2022 Oct 23

AMSAT Symposium Takes Place in Minnesota

The 40th Anniversary AMSAT Space Symposium & Annual General Meeting was held in Bloomington, Minnesota, Oct 21-23. Digital copies of the Proceedings of this Symposium can be purchased through the AMSAT Store online at www.amsat.org

The first session was held Friday afternoon, and began with a brief welcome from AMSAT President Robert Bankston, KE4AL.

The first presentation was "Building a Portable Sta;on for QO-100, the Geosta;onary Satellite Es'hail-2 Carrying Amateur Radio" by Stefan Wagener, VE4SW. While QO-100 is not accessible from North America, Stefan discussed his approach to a portable station that he has taken on European vacations.

Randy Berger, WA0D, ARISS Director of Engineering followed with "What's New, ARISS on ISS and Mission to the Moon with Lunar Gateway?" His presentation focused on the Student on Orbit Sensor System (SoOSS) which will send telemetry from various sensors on the ISS in a format that can be easily received and decoded in schoolrooms on Earth.
Randy also reported on prospects for amateur radio aboard the Lunar Gateway, a space station in a complex orbit around the moon. Opportunities exist and conversations with NASA are ongoing a the Gateway design emerges.

"OTA Software Update for LEO Satellites," a presentation by Heimir Thor Sverrisson, W1ANT, discussed advantages and challenges of being able to reprogram satellites after launch with over the air updates.

Nick Pugh, K5QXJ, presented with details on the CAPE IV 3U satellite currently in development with input from several universities. The primary mission will focus on educational projects aimed at high school and middle school classrooms.

The afternoon session concluded with "Export Control and Economic Sanctions Policy" by Robert Bankston, KE4AL, AMSAT President. The presentation centered on the newly adopted ITAR/EAR policy formally adopted by the AMSAT Board at their meeting earlier in the day. The goal is to return to international cooperation in the building and launching of satellites while complying with Federal law.

On Saturday morning, Nick Pugh, K5QXJ, updated the Symposium on "University of Louisiana at Lafaye[e Education Initiative" which encourages primary and middle school students to get involved in satellite technology through hands-on projects.

Paul Graveline, K1YUB, provided and update on the AMSAT CubeSat Simulator project. The presentation included a pre-recorded video by AMSAT VP, Educational Relations Alan Johnston, KU2Y, reviewing educational events that have taken place in the previous months.

A GOLF TEE update was presented by Kipton Moravec, AE5IB, who is an engineering volunteer coordinating the Electonic Power Subsystem (EPS) for the first satellite in the Greater Orbit, Larger Footprint (GOLF) series, known as the Technology Exploration Environment (TEE).

"The AMSAT Linear Transponder Module" was presented by Burns Fisher, WB1FJ. The LTM is a multi-use transponder board set designed for universities and other partners launching cubesats who have need for a communications component. Similar to the radio systems in Fox and GOLF, the partnership provides easy downlinks for universities and a transponder for amateurs.

In the afternoon on Saturday, Jonathan Brandenburg, KF5IDY, AMSAT Assistant VP, Engineering presented "Building a Helmholtz Cage for Dynamic Magnetic Field Generation and CubeSat Aitude Control Testing." Magnetorquers built to stabilize cubesats require test beds. A Helmholtz Cage provides the testing environment simulating the Earth's magnetic field, but is not trivial to build.

AMSAT Board member Zach Metzinger, N0ZGO, provided a report on the reaction wheel project that will be used for 3-axis orientation of the GOLF satellites. The entire reaction wheel assembly is being constructed specifically for the project by AMSAT volunteers.

As the final presentation, Jerry Buxton, AMSAT VP of Engineering, gave an AMSAT Engineering Update touching on Fox, Fox+, GOLF, and other projects.

[ANS thanks Mark Johns, K0JM, for the above information]

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The 2022 AMSAT President's Club coins have arrived!
To commemorate the 50th anniversary of its launch on
October 15, 1972, this year's coin features
an image of AMSAT-OSCAR 6.
Join the AMSAT President's Club today and help
Keep Amateur Radio in Space!
https://www.amsat.org/join-the-amsat-presidents-club/
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AMSAT Board Elects Officers

During their meeting prior to the AMSAT Symposium, on Thursday, Oct. 20, the AMSAT Board of Directors elected officers for the coming year. Those elected are:

Robert Bankston, KE4AL, President
Paul Stoetzer, N8HM, Executive Vice President
Jerry Buxton, N0JY, Vice President - Engineering
Drew Glasbrenner, KO4MA, Vice President - Operations
Alan Johnston, KU2Y, Vice President - Educational Relations
Vacant Position, Vice President - Member Services
Frank Karnauskas, N1UW, Vice President - Development
Steve Belter, N9IP, Treasurer
Jeff Davis, KE9V, Secretary

In other business, reports on current status of various functions were received from the officers. President Robert Bankston reported that AMSAT's financial status is strong. Reduced overhead from the closing of the Washington, DC office has resulted in more funds to build & launch satellites. Also, AMSAT membership remains steady at more than 4000 members representing 75 countries.

Acting Secretary Paul Stoetzer, N8HM, reported that the online election of Board members ran smoothly and resulted in considerable cost savings from the mailed paper ballot system previously used.

Steve Belter, N9IP, AMSAT Treasurer, reported that funds on hand are sufficient to meet the needs of day-to-day operations and satellite design and building projects currently underway. He also reported that Form 990 has been filed with IRS and will be posted publicly. Outside review of the books was conducted and found complete & correct. The Board voted unanimously to accept the review from McDaniel & Associates.

Mark Hammond, N8MH, reported on behalf of the Operations team. He gave a rundown on the current status of various satellites now in orbit. Of particular note, FalconSat-3 is predicted to re-enter the atmosphere in the next few months, but may be made available on a limited basis until that time. Also, AO-16 is in a period of continuous sunlight, but has not yet responded to commands to switch on. The operations team will continue to try to reactivate the satellite. The operations team wishes to thank AMSAT-DL for providing telemetry from AO-109 via their 20-meter diameter dish antenna.

Vice President - Development, Frank Karnauskas, N1UW, reported that membership in the President's Club remains steady. Grant requests have been made and are pending. Kidzsat and BuzzSat programs are starting up. For these programs, it is important to focus on being an educational and scientific organization. “Amateur radio isn't our purpose, it's our reward,” he noted.

Mark Johns, K0JM, Senior Editor of the AMSAT News Service bulletins, reported that there is an ongoing need for volunteer editors to assist with creating and distributing the weekly bulletins. A long-term goal is to transition from plain text to html format for the email editions, but the

Board expressed concerns that the bulletins remain accessible across various radio platforms, as well as via the internet. Concerns were raised about reporting of information embargoed by launch providers. AMSAT is bound by launch agreements to honor these restrictions.

The AMSAT Journal has been successful in digital format, however content is needed. AMSAT members are encouraged to work with the Journal editors to develop ideas and projects into articles.

The IT team has worked diligently on maintaining various email lists and systems. The Discord channel has several hundred members currently. AMSAT is seeking a webmaster to revamp the website for easier navigation.

Contests & Awards Manager, Bruce Paige, KK5DO, reported that the Gridmaster Award has been the most sought after in the past year, but other awards are holding steady. Store receipts are similar to last year.

At the close of the morning session, the Board adjourned for lunch.

[ANS thanks Mark Johns, K0JM, for the above information]

Financial Policy is Focus of AMSAT Board

Policy decisions surrounding finances were the focus of the afternoon session of the AMSAT Board of Directors meeting in Bloomington, Minnesota on Thursday, Oct. 20. A A Policy Proposal for the handling of financial reserves was discussed, and a revised Financial Procedures Manual was discussed at length. Final copy will be approved at an upcoming meeting.

Technical discussion was focused on development of a flight platform that could speed up testing of critical components. The platform would allow rapid testing of individual systems that can keep volunteer engineers engaged and speed deployment of new satellites. The test platform could be launched into short duration, low orbit flights that would be sufficient to verify system operation for insertion into longer duration projects, such as GOLF. Basic components could be sourced at low cost from Consumer Off-The-Shelf (COTS) components, and the AMSAT-built experimental segments can be added as needed.

[ANS thanks Mark Johns, K0JM, for the above information]

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Need new satellite antennas? Purchase Arrows, Alaskan Arrows,
and M2 LEO-Packs from the AMSAT Store. When you purchase through
AMSAT, a portion of the proceeds goes towards
Keeping Amateur Radio in Space.
https://amsat.org/product-category/hardware/

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AMSAT Board Adopts ITAR/EAR Policy

At an AMSAT Board of Directors held on Friday morning, Oct. 21, a detailed policy statement on compliance with U.S. technology export regulations. The purpose of the policy is to enable and encourage resumption of international cooperation in the building and launching of satellites while remaining within the bounds of Federal law.

International Traffic in Arms Regulations (ITAR) is "a United States regulatory regime to restrict and control the export of defense and military related technologies to safeguard U.S. national security and

further U.S. foreign policy objectives," according to the U.S. State Department.

The Export Administration Regulations (EAR) are a set of regulations administered by the U..S Commerce Department. The EAR regulates whether a person or organization may export something from the U.S. to another in a foreign country. The EAR apply to physical objects, as well as intellectual property such as technology and software.

"It's beem more than a decade since AMSAT has collaborated with a non-U.S. organization to build and launch a satellite," said AMSAT President Robert Bankston, KE4AL. "We need to learn how to get back to that while operating in this new legal environment."

The new policy will give AMSAT engineering volunteers guidance on how to do their work in collaboration with international partner while remaining within the law. By clarifying the steps necessary for compliance, volunteers can be more confident about their activities.

[ANS thanks AMSAT for the above information]

Volunteer For AMSAT

AMSAT needs qualified volunteers for a number of positions!

If you want to be a part of the solution in making AMSAT operational and work toward designing, building and finding a launch, WE NEED YOU! No pay for 5+ hours per week, but a great deal of satisfaction in knowing you are helping make something happen. We need people with wide range of technical and non-technical skills.

Immediate Openings

* RF Engineer
* Mechanical Engineers

Satellite Development Technical Experience

* Thermal design
* Power systems design
* RF systems design
* Internal Housekeeping Unit (IHU) systems, command, and control hardware
* IHU software design and development
* Especially SDR and DSP
* PC board layout and construction
* Systems Engineering
* Test planning and system testing
* Mechanical design and construction
* Ground station software development

If you have hardware or software technical skills, and proven experience directly applicable to satellite design, please contact the AMSAT Vice President of Engineering (N0JY).

Due to the American International Traffic in Arms Regulations (ITAR) you must be either a US Citizen or a permanent resident (ITAR Qualifications). This is not our reflection on foreign citizens, but is required by existing US law. Recent changes suggest that this restriction may soon be lifted or at least modified. If and when this happens, we will be delighted to be able to again work freely with our foreign colleagues.

AMSAT News and Communications

Communications through ANS and the AMSAT Journal are essential in keeping both with our members and the wider public informed. If your have good communications skills and are interested, please contact AMSAT Communications Volunteer Coordinator.

* Join the AMSAT News Service (ANS) team as a weekly editor on a rotating schedule reporting on amateur radio in space and related activities.

* Assistant Editor for the AMSAT Journal magazine working with authors, columnists and members developing and publishing print articles on amateur radio in space and related activities.

General AMSAT support

* Web design and maintenance
* Web site information maintenance
* Video recording, digital conversion and editing
* Write technical or instructional material
* Educational activities

Promoting AMSAT as an Ambassador

Any other area you think you think you can make a difference.

AMSAT is an organization of self starters. While we sometimes have tasks which we can assign, our most important contributions come from someone who sees a need, has the skills to solve the problem, and then goes ahead and does so. So pick an area that you think needs improvement and explain what you will do to make it better.

AMSAT has developed a survey which gives us a good general idea of someone's interests and experience. You can download it at https://bit.ly/3shvGV6 and fill in the information on screen. Please follow the instructions, and send it, along with any additional information you feel relevant, to volunteer(a)amsat.org.

[ANS thanks AMSAT for the above information]

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Want to fly the colors on your own grid expedition?
Get your AMSAT car flag and other neat stuff
from our Zazzle store!
25% of the purchase price of each product goes
towards Keeping Amateur Radio in Space
https://www.zazzle.com/amsat_gear

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ARISS NEWS

Amateurs and others around the world may listen in on contacts between amateurs operating in schools and allowing students to interact with astronauts and cosmonauts aboard the International Space Station. The downlink frequency on which to listen is 145.800 MHz worldwide.

Chief Whitecap Elementary School, Saskatoon, Saskatchewan, Canada, telebridge via VK6MJ
The ISS callsign is presently scheduled to be NA1SS
The scheduled crewmember is Josh Cassada KI5CRH
Contact was successful: Wed 2022-10-19 17:35:07 UTC 86 deg
Congratulations to the Chief Whitecap Elementary School students and Josh!

Canterbury School of Fort Myers, Fort Myers, FL, direct via W4LX
The ISS callsign is presently scheduled to be NA1SS
The scheduled crewmember is Josh Cassada KI5CRH
Contact is go for: Mon 2022-10-24 17:36:16 UTC 46 deg
Watch for Livestream at https://vimeo.com/762320321

Five Bridges Junior High School, Stillwater Lake, NS, Canada, telebridge via VK4KHZ
The ISS callsign is presently scheduled to be NA1SS
The scheduled crewmember is Josh Cassada KI5CRH
Contact is go for: Wed 2022-10-26 13:44:18 UTC 62 deg
Watch for Livestream at https://www.youtube.com/c/ARISSlive and https://nslive.tv/five-bridges-ariss

Ufa, Russia, direct via TBD
The ISS callsign is presently scheduled to be RSØISS
The scheduled crewmember is Anna Kikina
Contact is go for Sun 2022-10-30 18:45 UTC

The crossband repeater continues to be active. If any crewmember is so inclined, all they have to do is pick up the microphone, raise the volume up, and talk on the crossband repeater. So give a listen, you just never know.

The latest information on the operation mode can be found at https://www.ariss.org/current-status-of-iss-stations.html

The latest list of frequencies in use can be found at https://www.ariss.org/contact-the-iss.html

[ANS thanks Charlie Sufana, AJ9N, one of the ARISS operation team mentors for the above information]

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AMSAT, along with our ARISS partners, is developing an Amateur Radio package, including two-way communication capability, to be carried on-board Gateway in lunar orbit.

Support AMSAT's projects today at https://www.amsat.org/donate/

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Upcoming Satellite Operations

ND0C: We will be operating on some passes from EN41 later this week (Week of 10/17) while on our last camping trip of the season. This will again be a holiday-style rove on FM and linear sats

KC1MMC: Holiday style or message for pass between laps at Poconos raceway. FN21. Oct 22,23. Hopefully a pass or two in FN33 on the way back on. Oct 24th.

KD8CAO: ke8rju   kd8cao and K8DP are headed to @AMSAT Space Symposium. Plan is to stop in Wisconsin tomorrow (10/20), EN43 or EN44, See twitter for details.

[ANS thanks Paul Overn, KE0PBR, AMSAT rover page manager, for the above information]

Hamfests, Conventions, Maker Faires, and Other Events

AMSAT Ambassadors provide presentations, demonstrate communicating through amateur satellites, and host information tables at club meetings, hamfests, conventions, maker faires, and other events.

No events are scheduled at this time.

[ANS thanks Paul Overn, KE0PBR, AMSAT Events page manager, for the above information]

Satellite Shorts From All Over

+ Three NASA astronauts and a European flier boarded their SpaceX Crew Dragon capsule, undocked from the International Space Station and plunged back to Earth Friday, splashing down in the Atlantic Ocean east of Jacksonville to close out a 170-day mission. With Crew 4 commander Kjell Lindgren, KO5MOS, and co-pilot Bob Hines monitoring cockpit displays, flanked by Jessica Watkins and European Space Agency astronaut Samantha Cristoforetti, IZ0UDF, the Crew Dragon “Freedom” undocked from the Harmony module’s upper port at 17:05z. Descending under four large parachutes, the capsule gently splashed down off Florida’s east coast at 21:55z, within sight of a SpaceX recovery ship stationed nearby. (ANS thanks Spaceflight Now for the above information)

+ China is preparing to launch the final missions to complete its three-module Tiangong space station which it plans to keep constantly occupied for at least a decade. A Long March 5B is being assembled and tested at Wenchang Satellite Launch Center on the southern island of Hainan. The 849-metric-ton rocket is expected to launch the third and final module for the Tiangong space station at the end of October. After insertion into orbit by the Long March 5B first stage, Mengtian will rendezvous and dock with Tiangong, joining two earlier modules—the Tianhe core module and Wentian experiment module—in orbit to complete the Tiangong space station. (ANS thanks Space News for the above information)

+ NASA is ready to resume spacewalks outside the International Space Station after completing an investigation of water found in a spacesuit during a spacewalk earlier this year. The agency said Oct. 18 it expected to resume spacewalks at the station in mid-November after tracking down the source of a thin layer of water that pooled on the visor of European Space Agency astronaut Matthias Maurer at the end of a March 23 spacewalk. The investigation, which included returning the spacesuit Maurer wore to Earth for analysis on a SpaceX Dragon cargo spacecraft in August, concluded there was no specific hardware flaw with the suit itself. Instead, NASA blamed “integrated system performance where several variables such as crew exertion and crew cooling settings led to the generation of comparatively larger than normal amounts of condensation within the system.” NASA says that, in response, it has updated procedures and developed “new mitigation hardware” to minimize water accumulation and to absorb any water that does accumulate in the helmet. With those measures, NASA says spacewalks can resume on the station. (ANS thanks Space News for the above information)

+ Richard Branson's small satellite service provider Virgin Orbit Holdings Inc (VORB.O) will be doing its first launch from European soil within the next six weeks, its founder said on Oct. 18. "Virgin Orbit can launch satellites into space from anywhere in the world into any orbit at a days notice," Branson said during a press conference in Milan, Italy. "We are doing the first launch from European soil into space within the next six weeks ... from Cornwall," he added. (ANS thanks Reuters for the above information)

Join AMSAT today at https://launch.amsat.org/

In addition to regular membership, AMSAT offers membership to:

* Societies (a recognized group, clubs or organization).
* Primary and secondary school students are eligible for membership at one-half the standard yearly rate.
* Post-secondary school students enrolled in at least half time status shall be eligible for the student rate for a maximum of 6 post-secondary years in this status.
* Memberships are available for annual and lifetime terms.

Contact info [at] amsat.org for additional membership information.

73 and remember to help Keep Amateur Radio in Space!

This week's ANS Editor, Mark Johns, K0JM
k0jm at amsat dot org